

CLAIMS

What is claimed is:

1. A method comprising:
receiving a web page definition having a slicing tree describing an arrangement of a plurality of blocks in the web page; and
rendering the web page on a display screen according to the slicing tree.
2. A method as recited in claim 1 wherein the web page definition further includes block property data associated with one or more of the plurality of blocks.
3. A method as recited in claim 2 further comprising scaling one or more of the plurality of blocks according to a function of display screen size and the block property data.
4. A method as recited in claim 2 further comprising selecting a combination of the plurality of blocks to be adapted such that information fidelity is maximized according to the expression:

$$IF(P) = \sum_{B_i \in P} IMP_i \cdot IF_{B_i} ,$$

1 where IMP_i is a value representing importance of block B_i , IF_{B_i} is a value
2 representing information fidelity of block B_i , and $IF(P)$ is the total information
3 fidelity of the web page.

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5 5. A method as recited in claim 2 wherein the block property data
6 comprises:

7 an importance field;
8 a minimal perceptible size field;
9 a minimal perceptible height field;
10 a minimal perceptible width field;
11 an adjustability field; and
12 an alternative field.

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16 6. A method as recited in claim 5 further comprising determining a
17 scaling number using a capacity based ratio algorithm.

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20 7. A method as recited in claim 1 further comprising summarizing one
21 or more of the plurality of blocks.

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23 8. A method as recited in claim 1 further comprising associating a
24 scaling factor with one or more of the plurality of blocks.
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2 9. A method as recited in claim 1 further comprising generating a
3 binary tree having a plurality of nodes, wherein each node corresponds to a
4 combination of the plurality of blocks.

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6 10. A method as recited in claim 9 further comprising maximizing
7 information fidelity subject to:
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$$\sum_{B_i \notin P'} \text{size}(ALT_i) + \sum_{B_i \in P'} MPS_i \leq \text{Area} ,$$

10 where ALT_i is an adapted representation of block B_i , $\text{size}(ALT_i)$ is a
11 function that returns the size of ALT_i , MPS_i is a value representing a minimum
12 perceptible size of block B_i , and Area is a value representing the size of the target
13 area in which the web page is rendered.
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16 11. A method as recited in claim 1 further comprising scaling one or
17 more of the blocks to maximize information fidelity subject to a target area on the
18 display screen.
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1 12. A computer-readable medium having stored thereon computer-
2 executable instruction for performing a method comprising:

3 generating a web page definition having block property data defining a
4 minimum perceptible size of a plurality of blocks in the web page.

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6 13. A computer-readable medium as recited in claim 12, the method
7 further comprising generating a slicing tree defining the horizontal and vertical
8 arrangement of the plurality of blocks in the web page.
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11 14. A computer-readable medium as recited in claim 12 wherein the
12 block property data further comprises an importance value, an alternative
13 representation, an adjustment value, a minimum perceptible height value, and a
14 minimum perceptible width value.
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17 15. A computer-readable medium as recited in claim 12 wherein the web
18 page definition is dynamically generated on a server side object.
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21 16. A computer-readable medium as recited in claim 12, the method
22 further comprising adapting one of more of the blocks to fit in a target area based
23 on the minimum perceptible size.
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2 17. A processor-readable medium having processor-executable
3 instructions for performing a method comprising:
4 receiving a web page definition defining a plurality of blocks in a web page;
5 determining a maximum information fidelity associated with a combination
6 of summarized and unsummarized blocks in the web page; and
7 rendering the web page with the combination of summarized and
8 unsummarized blocks.
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11 18. A processor-readable medium as recited in claim 17, the method
12 further comprising:
13 scaling one or more of the blocks based on a slicing tree definition in the
14 web page definition.
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17 19. A processor-readable medium as recited in claim 17, wherein the
18 determining a maximum information fidelity comprises:
19 generating a binary tree having a plurality of nodes, each node representing
20 a combination of unsummarized blocks; and
21 performing a depth-first traversal of the binary tree to identify the
22 combination of unsummarized blocks for which the information fidelity is
23 maximized.
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2 20. A processor-readable medium as recited in claim 19, wherein the
3 performing a depth-first traversal comprises sorting the plurality of blocks in order
4 of decreasing importance.
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6 21. A processor-readable medium as recited in claim 19, wherein the
7 performing a depth-first traversal comprises determining whether the combinations
8 of unsummarized blocks are valid.
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10 22. A processor-readable medium as recited in claim 19, wherein the
11 performing a depth-first traversal comprises determining whether the combinations
12 of unsummarized blocks are feasible in accordance with block property data.
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1 23. A system comprising:
2 a browser operable to browse a web page based on a web page definition
3 comprising a slicing tree defining an arrangement of a plurality of rectangular
4 regions in the web page.

6 24. A system as recited in claim 23, wherein the web page definition
7 further comprises:
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9 parametric data associated with one of the plurality of rectangular regions,
10 the parametric data describing adaptability parameters related to the associated
11 rectangular region.

13 25. A system as recited in claim 24 further comprising:
14 a proxy module operable to generate an adapted web page definition based
15 on the parametric data; and
16 a rendering module operable to render an adapted web page based on the
17 adapted web page definition.
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20 26. A system as recited in claim 25, wherein the proxy module is further
21 operable to determine a set of the plurality of rectangular regions to be summarized
22 such that information fidelity of the adapted web page is maximized.
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27. A system as recited in claim 26, wherein the proxy module is further operable to traverse a binary tree having nodes representing sets of unsummarized rectangular regions.

1 28. A method of generating a web page having a plurality of blocks, the
2 method comprising:

3 determining a first information fidelity associated with a first set of the
4 plurality of blocks;

5 determining a second information fidelity related to a second set of the
6 plurality of blocks; and

7 rendering the first set of blocks in a summarized fashion if the first
8 information fidelity is greater than the second information fidelity.
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11 29. A method as recited in claim 28 further comprising:
12 arranging the plurality of blocks according to a slicing tree.
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15 30. A method as recited in claim 28 further comprising:
16 scaling a first block based on a minimum perceptible size value associated
17 with the first block and a target display area.
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19 31. A method as recited in claim 28 further comprising associating an
20 importance value to each block in the plurality of blocks.
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23 32. A method as recited in claim 31 wherein the importance values range
24 from zero to one.
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2 33. A method as recited in claim 29 wherein the slicing tree is defined in
3 a markup language file defining the web page.
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5 34. A method as recited in claim 33 wherein the markup language file
6 further comprises block property data for each of the plurality of blocks in the web
7 page.
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